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AUTHOR Chapin, John; Chirico, JoAnn
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This study sought to document optimistic bias among older adolescents in the context of numerous hazards. It was among the first studies to triangulate quantitative and qualitative measures to investigate how individuals make personal risk assessments within the optimistic bias literature. Results from a small-scale survey and follow-up interviews of college students indicate that students exhibit optimistic bias regarding arrest for criminal activity, lung cancer, unplanned pregnancy, HIV/AIDS, alcohol addiction, and violent crime. Consistent with previous research, college students draw considerably from personal experience when making comparative risk assessments. Personal interviews suggest new directions in optimistic bias research, such as the role of the mass media, as well as raising some methodological concerns. (Contains 35 references.) (Author)

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Why it Won't Happen to Me: How Older Adolescents Make Personal Risk Assessments

John Chapin

JoAnn Chirico

Penn State University

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Why It Won't Happen to Me: How Older Adolescents Make Personal Risk Assessments

The study sought to document optimistic bias among older adolescents in the context of numerous hazards. It was one of the first studies to triangulate quantitative and qualitative measures to investigate how individuals make personal risk assessments within the optimistic bias literature. Results from a small-scale survey and follow-up interviews of college students indicate that students exhibit optimistic bias regarding arrest for criminal activity, lung cancer, unplanned pregnancy, HIV/AIDS, alcohol addiction, and violent crime. Consistent with previous research, college students draw considerably from personal experience when making comparative risk assessments. Personal interviews suggest new directions in optimistic bias research, such as the role of the mass media, as well as raising some methodological concerns.

Introduction

Optimistic bias (Weinstein, 1980) suggests that individuals underestimate their personal risk to health hazards in relation to their peers. According to this perspective, individuals are aware of the risks associated with activities, but envision themselves the exception, not the rule, for any number of reasons. Optimistic bias research has flourished in the past two decades, but the hundreds of published studies have failed to identify how individuals make personal risk assessments. Understanding how personal risk assessments are made is an important step encouraging individuals to take self-protective measures in risky situations because people act on their perceptions (Breakwell & Millward, 1997; Hardeman, Pierro, & Mannetti, 1997; Serovich & Greene, 1997).

Purposes of the Study

The study seeks to document optimistic bias within the context of numerous hazards. The study is the only the second of its kind to triangulate quantitative and qualitative measures to investigate how individuals make personal risk assessments within the optimistic bias measures.

Optimistic Bias

An individual's actual risk and their perception of their personal risk are distinctly different. Weinstein (1989, 1987, 1983, 1982, 1980) shows that individuals make comparative risk assessments in an egocentric manner, paying little attention to the risk status of others when asked to determine their own relative risk. Weinstein originally labeled this phenomenon "optimistic bias." In lay terms, individuals believe they are less vulnerable to risks than others. Optimistic bias is a robust finding and has been replicated in a variety of contexts, including HIV/AIDS risk (Ellen, Boyer, Tschann & Shafer, 1996; Harris, 1996), sexually transmitted disease (STD) risk (Kaplan & Shayne, 1993; Turner, 1993), pregnancy risk (Eldridge, Lawrence, Little, Shelby & Brasfield, 1995; Smith, Gerrard, & Gibbons, 1997), cancer risk (Aiken, Feabaughty, West, Johnson, & Luckett, 1995; Clarke, Williams, & Arthey, 1997; Fontaine & Smith, 1995), smoking risk (Clarke et al., 1997; Segerstrom, McCarthy, Caskey, Gross, & Jarvik, 1993; Strecher, Kreuter & Korbin, 1995), substance abuse risk (Hansen, Raynor, & Wolkenstein, 1991; Miller, 1991), and general health risks (Glanz & Yang, 1996; Hoorens, 1996).

Although optimistic bias is well documented, less is known about how individuals make personal risk assessments. Numerous underlying mechanisms have been suggested in optimistic bias research. The most promising of these include psychological distance,

(Buehler, Griffin, & MacDonald, 1994; Frewer, Shepherd, & Sparks, 1994; Hakmiller, 1996; Helweg-Larson, 1994; Klar, Medding, & Sarel, 1996) and self-esteem through ego-enhancement (Chapin, 2000; Smith, Gerrard, & Gibbons, 1997). While a connection between these mechanisms and optimistic bias has been documented the specific role they play in establishing meaning attached to self and other in the context of risk assessment has not been explored. The actual "content" and development of optimistic bias is quite complex. The tendency toward bias that any individual exhibits would minimally involve (a) peer culture and norms through which individuals learn to define behaviors as desirable or undesirable (risky, not risky or worth the risk), (b) the criteria that determine the individual's position within the continuum of potential risk and (c) the subjective placement of other cultural messages from parent's, the media, etc.

Psychological Distance

Psychological distance refers to the way in which individuals target "peers" when asked to make comparative risk judgments. Perloff (1993) describes psychological distance as a complex variable including perceived similarity, familiarity, and identification. Perloff also contends that psychological distance may be conceptualized in two different ways:

According to one view, social distance falls along a continuum going from 'just like me' to 'not at all like me'. The category at one extreme includes the respondent, whereas the category at the other extreme would not. A second view is that social distance reflects the heterogeneity and size of the audience or group in question. According to this view, social distance is represented by a continuum that goes from 'my closest group or community' to 'my largest group or community' (p. 176).

Most studies utilize the second conceptualization. People enhance their subjective well-being by comparing themselves with a less fortunate other. For instance, ill patients

compare themselves with patients worse off than themselves (Kamler, Irwin, Stone, & Millstein, 1987; Taylor & Brown, 1994), gay men believe they are less likely to contract AIDS than other gay men (Bauman & Siegel, 1987; Joseph, Montgomery, Emmons, Kirscht, Kessler, Ostrow, Wortman, O'Brien, & Eshleman, 1987), and adolescent hemophiliacs recognize their escalated risk status compared to healthy peers for health-related threats, but demonstrate optimistic bias for non-health risks (Kamler, Irwin, Stone, & Millstein, 1987).

Operationally, psychological distance takes the form of differentiations made regarding the perception of the "other." As psychological distance increases ("my best friend," "students in this class," "average Americans," etc.), the amount of perceptual bias also increases. The salient criteria that individuals use to assess their degree of risk relative to the risk of others and how they develop this set of criteria are not documented. The factors that differentiate "self" from "others" who are more at risk are those that need to be addressed to bring perceived risk into line with real risk.

Self-Esteem.

Self-esteem may be defined as a relatively stable set of self-attitudes reflecting description and self-evaluation of an individual's behavior and attributes (Piers, 1996). The relationship between self-esteem and optimistic bias is a complex one, involving several variables: (a) individuals tend to engage in downward comparisons, comparing themselves to people they perceive to be at elevated degrees of risk, in order to maintain self-esteem, (b) individuals may also overestimate their skills that would prevent risk, and (c) failure to avoid a hazard only threatens self-esteem if the hazard is controllable (Weinstein, 1987). While attributing optimistic bias to self-esteem, most of these studies

actually measured "controllability" (for example, people are more optimistic about avoiding diseases tied to behaviors than disease passed through family lines), and inferred that such differences were caused by self-esteem. There are a few recent exceptions to this. Smith, Gerrard and Gibbons' (1997) study of college women's perception of vulnerability to unplanned pregnancy used the Rosenberg Self-Esteem Scale in conjunction with standard optimistic bias scales (Weinstein, 1980). Smith et al. (1997) found that self-esteem was a significant predictor of perceived vulnerability, with low self-esteem women reporting higher vulnerability than high self-esteem women did.

Measurement Issues

Risk perception goes beyond the individual. It is a social and cultural construct reflecting values, symbols, history and ideology (Weinstein, 1989). Weinstein (1989) admits it is difficult to know if an individual's assessment of their absolute (or actual) risk is accurate:

If comparative, rather than absolute, risk judgments are gathered, it is easy – on a group basis – to demonstrate the existence of an optimistic bias or pessimistic bias. If a randomly selected group of people report their beliefs on a scale that ranges from -3 (much below average) to +3 (much above average), with zero (average for men or women my age) as the midpoint, the mean of the responses should be zero if there is no systematic bias. Those who claim below-average risk should be balanced by those who admit above-average risk (p. 149).

Thus, optimistic bias is an attribute of a group, though individuals exhibit "optimistic tendencies." As currently measured, individual-level data is lost. Examining how individuals make personal risk assessments requires a different level of measurement. The current study utilizes qualitative measures, personal interviews with a subset of the survey sample, to regain access to individual-level data.

The only study to combine personal interviews with quantitative measures of optimistic bias (Hampson, Andrews, Lee, Foster, Glasgow, & Lichtenstein, 1998) also lost individual-level data by coding, categorizing, and quantifying response groups.

Hypotheses and Research Questions

Theory discussed in the previous sections leads to several hypotheses and research questions, summarized here in the order they will be tested and presented.

Hypothesis 1: People believe they are less likely than others to experience negative outcomes associated with risky behaviors (optimistic bias).

Hypothesis 2: Optimistic bias will increase as psychological distance increases (predicts mean differences between two target levels in optimistic bias measures).

Hypothesis 3: Actual risk experience (smoking, drinking, unprotected sex) will predict differences in optimistic bias at low psychological distance (comparisons with best friend), but not at greater psychological distance (comparisons with other college students in the U.S.).

Research Question 1: What are the criteria used to assess personal risk?

Research Question 2: What criteria form the basis of differentiating self from others relative to risk assessment?

Methods

A small-scale survey was administered to a sample of students between the ages 17 through 41 ($M = 19.68$, $SD = 3.21$) in a low-income community in western Pennsylvania. Surveys were distributed to all of the 750 students on campus, including degree, non-degree, continuing education, full-time, and part-time students. Through a cooperative agreement with faculty, participants received extra credit in courses.

Representing all majors and most non-degree programs, 158 students participated in phase 1 of the study (the survey). Consistent with the student body, the sample was 56% female and 94% white.

Of the 158 participants, 21 agreed to be subsequently interviewed. Three months later, 18 people were interviewed in 20-minute sessions with a trained research assistant. The demographic make-up of the sub-sample was consistent with larger sample.

Optimistic Bias

Optimistic bias was measured with a standard instrument designed by Weinstein (1984). The procedure asked students to compare their relative risk of seven target risks (being arrested for shoplifting or another misdemeanor, getting lung cancer later in life, getting AIDS later in life, becoming addicted to alcohol later in life, being the victim of a violent crime, experiencing an unplanned pregnancy, and failure to complete college) with two target peers (my best friend, other students my age in the United States). For instance, one question asked, "compared to my best friend, my chances of being the victim of a violent crime are ____." Following Weinstein's (1984) method, comparative risk assessment was measured on a 7-point scale (-3 = "much less" than other students in the USA, +3 = "much greater" than other students in the USA). A mean of zero would indicate no bias, either optimistic or pessimistic on the group level.

Psychological Distance

Psychological distance was manipulated by presenting two targets (my best friend, other students my age in the United States) for comparison of relative risk to each target hazard. Consistent with Weinstein (1989), the targets were presumed to increase psychological distance for each comparison.

Risk Experience

Consistent with the optimistic bias measure, participants were asked to self-report lifetime risk (Which of these things have you EVER done?) for seven target behaviors (shoplifted or another misdemeanor, smoked cigarettes, had protected sex (with a condom), had unprotected sex, consumed alcohol, consumed alcohol to the point of being drunk, and studied. The frequency of behaviors was assessed by asking students how many days (of the past 30) they engaged in the seven target behaviors (none, 1-2 days, 3-10 days, 11-20 days, almost every day). The technique is consistent with CDC youth surveys, and was adapted for use with optimistic bias instruments by Chapin (2000).

Interviews

Personal interviews were used to uncover the criteria the students use to assess their risk and how they learned them. Rather than following a rigidly structured and formatted interview schedule, the interviews were designed to be non-directive and exploratory. This was to enable the researchers to reconstruct the reality of risk, as perceived by the participants not as preconceived by the researchers.

Participants were asked to complete a brief questionnaire indicating their level of risk for specific outcomes in relation to their best friend and other students in the United States. Using the questionnaire as a guide, the interviewer asked, "you indicated that you are at significantly less (greater) risk of contracting lung cancer (AIDS, etc.) than other students. Why do you think this?" Depending on the nature of the answer, this was followed by questions such as, "why do you believe this, "how do you know that," or "is that the only reason?" Each interview was analyzed at the individual level.

Findings

Group Level Data

Optimistic bias in a group is demonstrated by a group mean significantly less than zero. Hypothesis 1 predicted that people would believe they were less likely than others to experience negative outcomes. A single-sample t-test was used with each target hazard to test the hypothesis that the mean of optimism was significantly different from zero. As predicted in H1, the students exhibited optimistic bias for each hazard, believing they were less likely than people their age in the United States to be arrested for a misdemeanor crime, $t(157) = -24.91, p < .001$, to get lung cancer later in life, $t(157) = -14.84, p < .001$, to contract AIDS later in life, $t(157) = -29.32, p < .001$, to become addicted to alcohol later in life, $t(157) = -16.75, p < .001$, to become the victim of a violent crime, $t(157) = -11.95, p < .001$, to experience an unplanned pregnancy, $t(157) = -15.19, p < .001$, or to fail to complete their college education, $t(157) = -11.40, p < .001$. This finding is consistent with the existing optimistic bias literature. Single sample t-tests were also significant for comparisons with closer targets (my best friend); however, these findings will be discussed in conjunction with H2.

The students were most optimistic regarding AIDS ($M = -2.26, SD = 1.31$), with 92% of the students believing they were less likely than peers in the U.S. to contract AIDS later in life. Optimism regarding the likelihood of AIDS was followed (in order) by optimism regarding misdemeanor arrests ($M = -2.17, SD = 1.10$), alcohol addiction ($M = -1.75, SD = 1.31$), lung cancer ($M = -1.73, SD = 1.47$), unplanned pregnancy ($M = -1.61, SD = 1.33$), violent crime ($M = -1.22, SD = 1.23$), and college failure ($M = -1.08, SD = 1.19$). About 65% of the students exhibited optimistic tendencies regarding their

chances of graduation as compared to U.S. peers. Fewer (30%) perceived no differences between themselves and others, and fewer still (5%) believed they were less likely than others to graduate.

Because the mean for optimism on a possible range from -3 to +3 was significantly less than zero for each hazard, the term "optimistic bias" will be used throughout the current study to describe personal vs. other risk assessments. This guideline is consistent with current practices. H1 was supported.

Differences in the degrees of optimism regarding different hazards are consistent with the literature. It has been argued in the past that such differences result from differing degrees of controllability, social stigma, and severity of the target hazards. Each of these finds their bases in rational decision-making models. Individual level data is needed to further explore these relationships and to shed light on how individuals make such judgments.

Hypotheses 2 predicted that optimistic bias would increase as psychological distance increased. Specifically, it was predicted that optimistic bias would be the greater when students compared themselves to distant targets (other students their age in the U.S.) as opposed to closer targets (my best friend). Paired-sample t-tests were used to test mean differences between the close and distant targets for each hazard. As predicted, there were significant mean differences in perceived self vulnerability when compared to a best friend and a distant peer for each of the seven hazards: misdemeanor crimes, $t(156) = 11.38, p < .001$; lung cancer, $t(157) = 6.91, p < .001$; AIDS, $t(157) = 10.95, p < .001$; alcohol addiction, $t(157) = 7.80, p < .001$; violent crime, $t(157) = 6.98, p < .001$;

unplanned pregnancy, $t(157) = 8.66, p < .001$; and college failure, $t(157) = 3.63, p < .001$. H2 was supported.

Group-level data provide one clear consideration college students use to assess their own risk: experience. Students who were sexually active (70%) exhibited less optimism about avoiding unplanned pregnancy ($M = -1.40, SD = .25$) than students who had not yet had sex ($M = -2.19, SD = .28$), $t(156) = -3.74, p < .001$. Surprisingly, similar differences did not emerge when the same students considered their relative risk of AIDS. Students who reported drinking to the point of drunkenness (29%) exhibited less optimism about avoiding future alcohol addiction ($M = -1.25, SD = 1.16$) than students who had not yet been intoxicated ($M = -2.19, SD = 1.22$), $t(124) = -3.97, p < .001$. Just trying alcohol or occasional use failed to elicit significant mean differences. Students who smoke cigarettes (71%) exhibited less optimism about avoiding lung cancer in the future ($M = -1.39, SD = 1.57$) than students who did not smoke ($M = -2.57, SD = .69$), $t(156) = -4.88, p < .001$. Students who reported shoplifting or other misdemeanor crimes (42%) exhibited less optimism about avoiding arrest ($M = -1.71, SD = 1.31$) than students who reported no criminal activity ($M = -2.50, SD = .76$), $t(156) = -4.76, p < .001$. There was no difference between students who reported carrying guns or other weapons (18%) and those who did not in optimistic bias about violent crime.

Individual Level Data

All of the research questions were exploratory in nature. Question 1 searched for the criteria that people use to make personal risk assessments. All interviewees believed that they were at lower risk than students generally, in all categories of risk. Most believed that they were at lower risk than their best friends, for all of the risks studied.

All of them attributed their optimism to not engaging in the risky behaviors at all or at much lower rates than their friends or students generally.

Interviewer: Who do you think of when you think "other US students"?

"Connie": Basically, the party animals on college campuses.

"Brad": I don't shoplift and I'm sure there are other students out there that do.

Pessimistic bias was exhibited by three participants in relation to their best friend, relative to smoking. The bias was attributable to behavior. They smoke and their friend does not. Pessimistic bias with respect to the risk of alcoholism was also expressed by one of these interviewees. The criterion used in this risk case was family background. On the one hand, he explained his greater risk by a family background of alcoholism, which he believed was genetically triggered. On the other hand, he explained his friend's lower risk by his family's religious affiliation:

"Jeremy": My family's background has a lot of alcoholism in it. My grandfather, my father... everyone in my family...my friend is Catholic and no one from his family drinks, so I don't think he has much chance (of becoming addicted to alcohol).

While accepting genetic risks is a common finding in optimistic bias studies, the interview responses make it clear that what one considers a genetic risk may vary from person to person. The degree to which students attribute protective power or vulnerability to their genetic inheritance may be a source of error in assessing their risk levels. Church attendance has also been long-considered a self-protective behavior in relation to adolescent risk-taking; however, it has yet to be considered in the optimistic bias literature. Behavior was used as the primary distinction by both groups. Only one subject reported a non-behavioral criterion. Family background was mentioned in the context of a pessimistic "evaluation" to explain differentiation of self from friend, on both

sides of the equation-- what made him different than his friend and his friend different than him.

Addressing the mechanisms through which people learn the criteria that they use, students mentioned that they "know the statistics" concerning the risks. Others say they learned through the media:

"Nancy": I watch the news. I see that it happens. I know it doesn't happen to me, and these things happen to them... I think I am probably somewhat influenced (by the media), but we just don't realize that we are because it's such a part of the culture.

"Gretchen": I think more of an article that I read ... a statistic about something -- like when I hear 4 out of 5 college students drink. Well, I don't drink, so that leaves THEM. If I did drink, I would probably be more like them.

Participants believed people influenced by TV violence were those who "don't have much parental guidance" or those who are "kind of on their way there." Generally, "other" was simply those who do the behaviors that I don't do.

Research question 2 focused on the difference perceived between self and other. Age was mentioned by numerous participants. "Other" frequently consisted of people who were younger. "Younger" meant for one of the subjects acting without thinking, lack of control and less maturity. "Other" for her was those who do stupid things, who don't draw lines or have boundaries. This participant figured that she was at about the same as those her age.

"Lori": (asked how she defines "other" in regards to her chances of contracting HIV/AIDS) I'm thinking of students, but not strictly limiting it to students. I'm thinking of everybody when I think of AIDS... It's kind of hard because you don't see a problem around here, and if there is you don't hear about it, so it's kind of hard to compare... so it has to be somebody else.

For other participants, "other" was other kinds of students; "the party animals" or the "typical college student." Why the subject was not typical or what a party animal was were not clarified.

Discussion

Findings from the current study should be interpreted with caution due to the small sample size and demographic characteristics of rural Pennsylvania. While effectively addressing problems in the literature created by group-level measures, the findings from this study may be less generalizable to different cultural and age groups.

The role of experience with risks decreasing optimistic bias was consistent across both the group and individual level data. Prevention programs need to emphasize personal risk BEFORE students have to experience the negative outcomes for themselves.

Two new directions for optimistic bias research are suggested by the interviews. The role of the media in creating awareness (and/or misperceptions) of statistics, and how such perceptions are internalized as personal risks or invulnerabilities is unclear. Given the amount of time adolescents spend with the media, it is an important variable that has yet to be included in the current literature. The second consideration deals with methodology. The focus on group level data currently in use may be masking important knowledge about how optimistic biases are formed. The interviews also revealed that standard survey questions (i.e. comparison with "others") elicit a wide range of possible interpretations from study subjects. Understanding how and why people make such comparisons could be an important first step in curbing the misperceptions, reducing bias, and (by extension) encouraging self-protective behaviors.

The findings from the current study are significant because the triangulation of quantitative and qualitative measures is one of the first of its type to examine optimistic bias at the group and individual levels. With over 100 published articles in two decades, the phenomenon is well documented. Research emphasis should now turn to the "hows" and "whys."

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